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MECHANICAL AIDS IN THE TEACHING OF READING.

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A SURVEY OF THE MECHANICAL AIDS AVAILABLE FOR THE TEACHING OF READING WHICH DESCRIBES THEIR OPERATION, THEIR COST, AND LIMITATIONS IS PRESENTED TO PROVIDE SCHOOL PERSONNEL WITH SOME INFORMATION ABOUT MECHANICAL AIDS IN GENERAL AND ABOUT SELECTED PROTOTYPICAL DEVICES IN PARTICULAR. EDUCATORS CAN OBTAIN FURTHER INFORMATION ABOUT THE DEVICES FROM THE MANUFACTURER WHOSE ADDRESS IS INCLUDED WITH EACH DESCRIPTION. THE DEVICES DESCRIBED FALL INTO FOUR CATEGORIES--TACHISTOSCOPES, ACCELERATORS, PACERS, AND MULTIMEDIA PRESENTATIONS, SUCH AS THE LANGUAGE MASTER AND THE CALIFONE REMEDIAL READING LABORATORY. SOME OF THE RESEARCH RELATED TO THESE DEVICES IS DISCUSSED. REFERENCES AND ILLUSTRATIONS ARE PROVIDED. (RH)

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MECHANICAL AIDS IN THE TEACHING OF READING

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Research and Development Center
for Learning and Re-education
The University of Wisconsin
Madison, Wisconsin

January 1967

RE 000 997

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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PREFACE

Through synthesizing present knowledge and conducting research to generate new knowledge about cognitive learning and conditions associated with efficiency of school learning, the R & D Center for Learning and Re-education is working toward its primary goal of improving cognitive learning in children and youth, commensurate with good personality development. Knowledge is being focused upon the three main problem areas of the Center: developing exemplary instructional systems, refining the science of human behavior and learning as well as the technology of instruction, and inventing new models for school experimentation, development activities, etc.

In our research on reading skills and consultations with teachers of reading, we have encountered a particularly well defined need; this paper is our response to that need. As the availability of federal support has provided impetus to the creation of new programs for the teaching of developmental and remedial reading, educators have been bombarded with claims and counter-claims regarding the role of certain varieties and species of instructional aids. Prominent among these have been the mechanical aids for use in teaching reading. The purpose of this paper is to provide school people with some needed information about mechanical aids in general and about selected prototypical devices in particular. We feel that more intelligent decisions as to the purchase of devices will result from educators' knowing what types of devices are available and understanding their strengths and limitations.

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I
OVERVIEW

One result of the intensive research carried out in recent years in the area of human learning has been the development of methods and devices for teaching reading. These promise to facilitate rapid and effective acquisition of reading skills, to offer relief from overcrowded classrooms, and to provide adaptability for meeting individual student needs. Inspired by these claims, and in many instances supported by Title I funds of the Elementary and Secondary Education Act, schools have purchased new programs and devices. But all too often these reading materials have been unsuited to their requirements because teachers and administrators were ignorant of the available choices.

Previously, no single source existed which surveyed the mechanical aids available and described their operation, cost, and limitations. This paper presents such a survey, designed to clarify the approaches adopted by various devices, so that teachers can more readily and intelligently select the device most appropriate to their situations.

This survey is not exhaustive. If catalogued, the devices currently available would yield a list both repetitious and lengthy, since many are based on the same principles. We have included prototypical devices from established companies. Educators can obtain further information about the surveyed devices from the manufacturer at the address included with each description. Companies often offer further curriculum programs, accessories, and devices. We have included only those programs relative to remedial reading and those accessories necessary to the basic operation of a reading program.

READING INSTRUCTIONAL DEVICES

The devices now used to develop reading skills fall into three basic categories: tachistoscopes, accelerators, and pacers. Tachistoscopes, designed to increase visual span, project words or groups of words for from 1/100 to 1 1/2 seconds onto a screen. Dechant (1964) suggests that tachistoscopes "require the pupil to see more rapidly, more orderly; to pay better attention to what was seen; and to organize what he has seen p. 451 ." Pacers—designed to facilitate left-to-right eye movement—present material in line form or as segments of a line, and are most appropriate to the first three grades. Accelerators, however, are designed to increase the reading rate of competent readers. Accelerators decrease the number of visual regressions and fixations and are used optimally in the upper elementary and junior high school grades (Dechant, 1964, p. 464). Both pacers and accelerators guide the reader's focus down or across any page of printed material by means of a mechanically moving bar, pointer or beam of light, at a rate which can be varied from 70 to 5,000 words per minute.

RELATED DEVICES

More familiar audiovisual aids also play their role in the modern reading curriculum. Filmstrip projectors become reading instructional devices when used with specialized reading materials. Reading film programs offer a series of filmstrips which flash paragraphs or long phrases from stories (exposures) onto the screen for a short time. Exposures range from approximately 180 to 550 words per minute as the student progresses. Exposed phrases are dimmed to discourage eye regressions and decrease the number of eye fixations as the series progresses. Multimedia presentations have been designed that add tape recorders, language laboratories, and closed circuit television with concurrent sets of instructional materials to the reading battery. Both filmstrip programs and multimedia presentations are frequently used in

conjunction with the devices described earlier, though they are designed to function independently.

CRITICISM

These devices present several unanswered questions to educational research, particularly concerning a basic emphasis on eye movement and transfer of device-acquired skills. The rationale for using many devices is based on the thesis that reading ability can be improved by preventing visual regressions and reducing the number of visual fixations, thereby increasing rate. Since the 1940's, however, emphasis on eye movement as an essential cause of poor reading has decreased. Many researchers regard poor eye movement as symptomatic rather than causal (Tinker, 1959; Otto & McMenemy, 1966). Spache (1958) has noted "fixation frequency is not highly related to reading speed. . . . difficulty of the material, familiarity of the content, as well as format also influence fixations. If these elements of the reading situation and the reader modify fixation frequency to a significant degree, training intended to produce a fixed pattern seems unrealistic p. 123." Further, changes in reading purpose have been found to affect eye movement measures significantly. Emphasis should not be placed on rate, therefore, but on flexibility of rate; and the difficulty or familiarity of the material, as well as the reader's purpose in reading the selection, should be prime factors in determining his rate.

Transfer of device-acquired skills has also been challenged by critics. Given that most reading devices project the material to be read at far-point and that most elementary school children are far-sighted (Spache, 1963), children who demonstrate high reading ability with devices may not necessarily be able to transfer this skill to near-point reading in books. Conversely, adults, who are primarily near-sighted (Dechant, 1964), and myopic children may risk visual fatigue with constant practice at far-point. Research supports the conclusion that transfer from device to normal reading in both children and adults is low (Manolakes, 1952; Smith and Tate, 1953). Causey (1959), however, by detailed planning in a college reading program, was able to facilitate this transfer. Causey combined the device approach with normal reading so that his students read every fourth page of material unaided, though using a reading device for the majority of their reading. He gradually increased the proportion of pages read unaided until at the conclusion of his program students used devices only for the first and final pages read during the laboratory period. He included a brief, timed, unaided reading test at the opening and close of each period and students constantly compared their normal and device-aided reading rates, which gradually converged. Educators should be aware, therefore, that reading performances acquired with devices do not automatically transfer to normal situations, and should take care to effect this transfer by classroom planning.

RESEARCH

Once they are aware of the possible problems, educators might well inquire whether research has justified the criticism levied. Comparisons of results obtained in device-centered programs and in programs not using devices have not produced unequivocal answers. Cason (1943), in a study of third-grade children, compared those who studied phrasing without the use of a device and those who studied the same material with a tachistoscope. There was no significant difference between the two groups in reading phrases or eye movements, and neither group improved significantly more than children in free reading groups. Westover (1946) obtained similar results in working with college students when a group using ordinary printed material matched gains made by a similar group using a reading device. Weber (1939) found that students working with tachistoscopic exercises made greater gains in rate and comprehension than did a control group, although his second experimental group, using the Pressey Manual of Reading Exercises, made identical gains. Thompson (1965), however, compared a book group, a device group, and a control group in a 21-hour course and found that the book group made rate gains significantly superior to those of the device group.

Though general tendencies indicate that reading devices are not demonstrably superior to other methods of improving certain reading skills (Dechant, 1964), gains in reading rate have been reported by educators using devices. Several studies have indicated that tachistoscopic training broadens visual span. Sutherland (1946) found a relationship between visual span and reading rate, and Weber (1942) reported that visual span was increased both horizontally and vertically in his research.

Cosper and Kephart (1955) found that their group using a group tachistoscope, film, and essays made significant rate gains over a control group, though comprehension did not change significantly. Robinson (1934), however, was able to combine a 5 percent gain in comprehension with a 58 percent gain in reading rate by gradually lengthening tachistoscopic training phrases.

In summary, research indicates that device-centered training does increase reading rate, but debate surrounds the cause of this increase. Broadening the visual span does not of itself guarantee improved reading (Smith & Dechant, 1963; Taylor, 1957) and increased rate is not exclusive to device training; the latter can be achieved by many different methods, exclusive of devices (Spache, 1963). What, then, are the particular contributions to devices, and what is their role in the average reading program?

Dearborn (1938) considers the so-called "Hawthorn effect" as he suggests that methods "which are intrinsically not even sound or sane may, because of the novelty of their appeal and assurance of success, arouse the student to new hopes and efforts at improvement. . . . they succeed not by stretching the visual span, but by spurring the mind p. 6 ." Other writers, too, have suggested that reading devices help to motivate the student to improve his reading abilities, that due to their novelty they are inherently interesting to use (Jones, 1951), that they increase the confidence of the slow reader in his ability to improve (Perry & Whitlock, 1954), and that they offer variety in the reading program.

These factors are not to be ignored, though motivation, novelty of approach, the fostering of confidence, and variety can and have been successfully incorporated into reading programs that do not utilize devices.

CONCLUSION

More research is necessary before concrete suggestions can be made concerning the efficacy of devices within the reading program. At the present time, considering their cost, considering that they generally cannot offer flexible reading rates, and that they are directed towards the symptoms rather than causes of poor reading, it seems reasonable to suggest that funds commonly spent for the purchase of reading devices might more wisely be used for other purposes. However, less rigid mechanical design and better understanding of the reading process may result in more defensible and more generally useful devices. Some of the existing devices described in the pages that follow seem to hold promise for future development.

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II
REVIEW

The catalogue of reading instructional devices which follows is not intended to be exhaustive, but representational. Prototypical devices are listed and grouped according to their approaches, and no evaluative hierarchy is intended. Since the variety of programs offered is almost as important as the variety of devices, this is described in as much detail as brevity permits; in complex cases only the range of program content is indicated. Again, this constitutes neither evaluation nor endorsement. Similarly, complete price lists are recorded only when they can be concisely stated; otherwise, merely the price range is given. The reader is cautioned that indicated prices are illustrative, but subject to fluctuation.

TACHISTOSCOPES

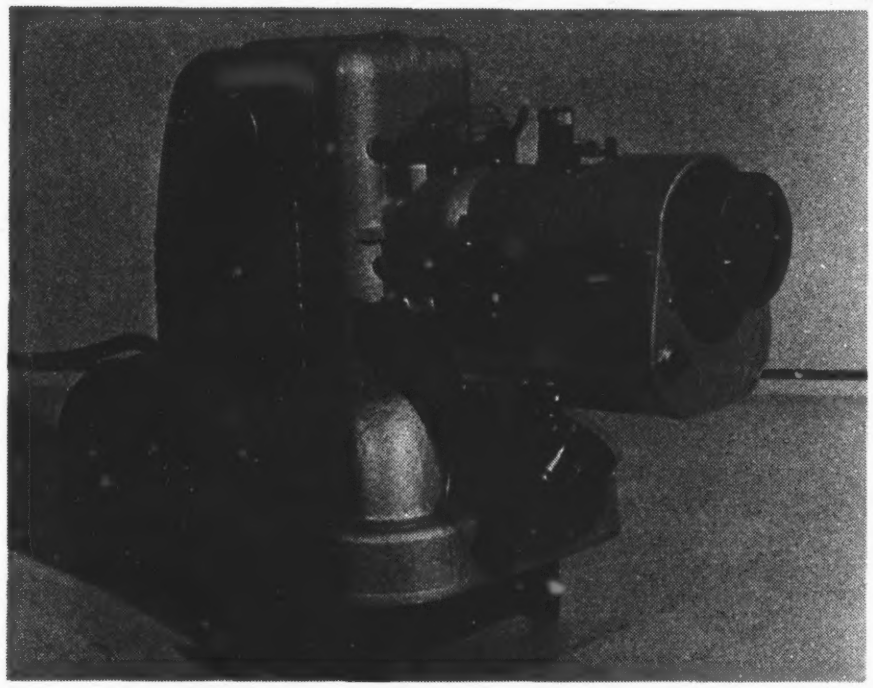
1. EDL Tach-X Tachistoscope, Educational Development Laboratories, Huntington, New York.

This tachistoscope projects filmstrip images onto a screen for from 1 1/2 to 1/100 of a second. The Tach-X offers 500 watt illumination and can be used with groups as large as 18 students. Filmstrips are available, ranging from readiness to adult reading levels, in sets of 25.

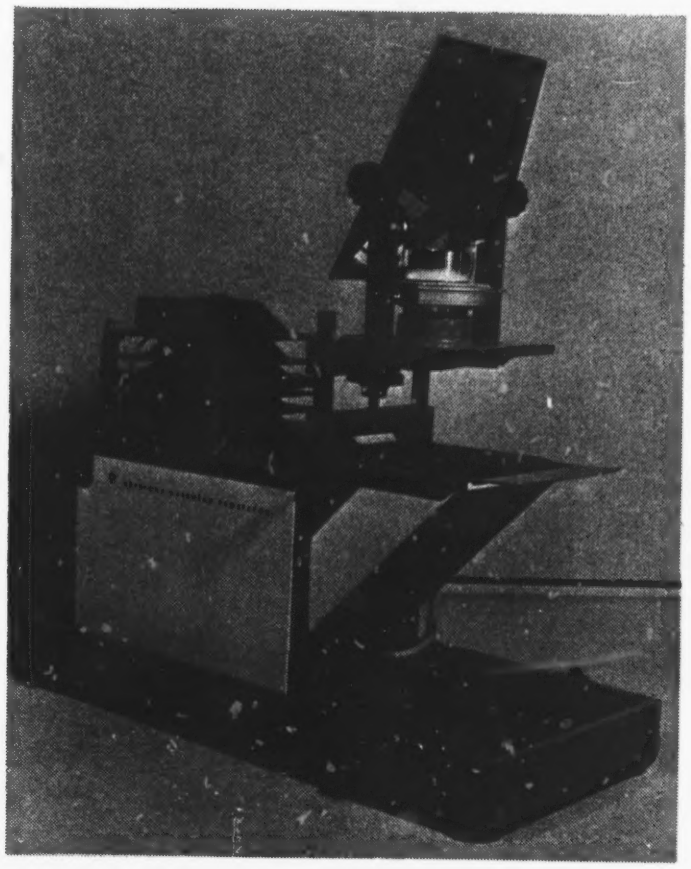
EDL Tach-X (with carrying case): $200.40.
EDL Tach-X filmstrips (per set): $ 62.50.

2. Keystone Standard Tachistoscope, Keystone View Company, Meadville, Pennsylvania.

This tachistoscope consists of the Keystone Flashmeter and Keystone Overhead Projector. The Flashmeter is a tachistoscopic attachment that provides exposures of 1 second, 1/2, 1/5, 1/10, 1/25, 1/50, and 1/100 of a second. It is designed for use only with the Keystone Overhead Projector. Three masks, included in the purchase price, are necessary for certain of the Keystone Tachistoslide units.



EDL Tach-X Tachistoscope



Keystone Overhead Projector

Tachistoslide units, based on established exercises such as the Dolch Basic Sight Vocabulary and Dolch Phrase Sentence Reading, are sold separately.

Keystone Standard Tachistoscope (Keystone Flashmeter and Keystone Overhead Projector): $344.00

Keystone Flashmeter alone (for use only with Keystone Overhead Projector): $101.00.
Keystone Tachistoslide units vary widely in individual prices, from $11.25 to $135.00.

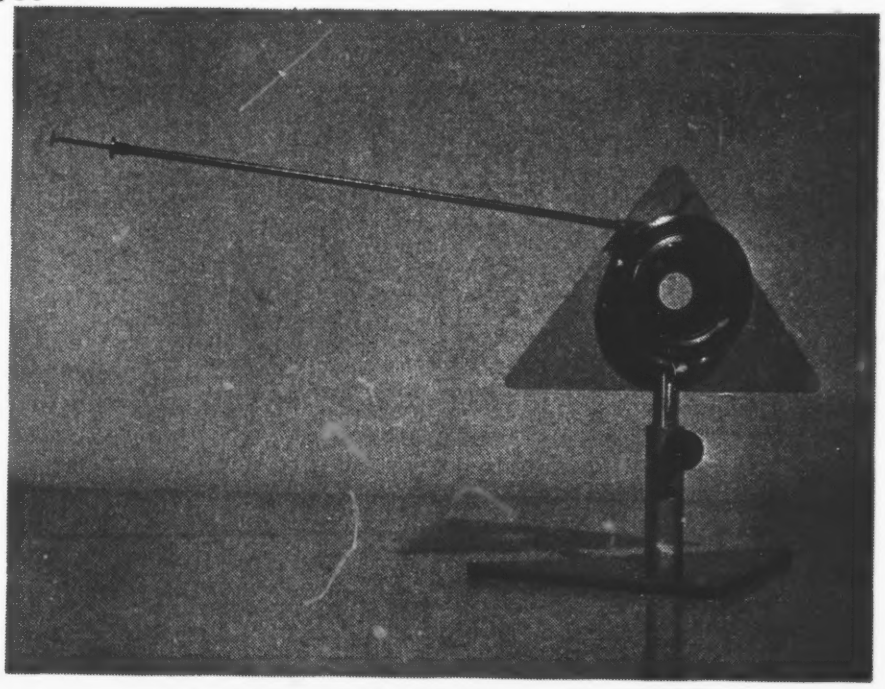
3. Rheem-Califone Percepta-matic Tachistoscope, Carlton Films, 3055 Park Avenue, Beloit, Wisconsin.

The Percepta-matic is a tachistoscopic projector with small plastic reels. Each reel contains 14 sectionalized frames and provides 42 exposures within these frames by means of a shutter on the device. Shutter speeds progress from 1/10 to 1/100 of a second, and can be set at any speed within that range. Percepta-matic reading kits include a Teacher's Manual and 20 reels, which provide 840 exposures. These kits acquaint the student with digits, words and phrases common to reading programs at his grade level. The Percepta-matic is portable, and reels eliminate threading and rewinding so that students can use it by themselves.

Rheem-Califone Percepta-matic (Perceptual Organization Manual and Screenette included): $135.00.
Reading kit (available for Levels 1 through 8): $ 30.00.

4. T-AP All-Purpose Tachistoscope Attachment, Lafayette Instrument Company, P. O. Box 1279, Lafayette, Indiana.

The T-AP converts any brand of projector to a tachistoscope. It is adjustable in height



T-AP All-Purpose Tachistoscope Attachment

and speeds, which are 1/100, 1/50, 1/25, 1/10, 1/5, 1/2, and 1 second.

T-AP All-Purpose Tachistoscope Attachment (with release cable): $ 98.00.

5. SVE Speed-i-o-scope, Society for Visual Education, Inc., 1345 Diversey Parkway, Chicago, Illinois.

The Speed-i-o-scope is another tachistoscopic projector attachment, with a lens diameter of 2 1/16". Its 7 shutter speeds also range from 1/100 to 1 full second. The Speed-i-o-scope can be used on all projectors with a front end lens diameter of 1 7/8" (Series O) to 2 1/16" (Series S). A series of 16 Speed-i-o-strips (6S-110-S) may be ordered for use with the Speed-i-o-scope and includes 6 filmstrips on word recognition, 3 on phrases, 1 on sentences, 3 on familiar objects, and 3 of color photographs. These Speed-i-o-strips are based on the Dolch lists. Further filmstrips are available for each of the reading Speed-i-o-strip categories.

SVE Speed-i-o-scope: $ 89.50.
Speed-i-o-strips (6S-110-S): $ 35.00.

6. Electro-Tach, Lafayette Instrument Company, P. O. Box 1279, Lafayette, Indiana.

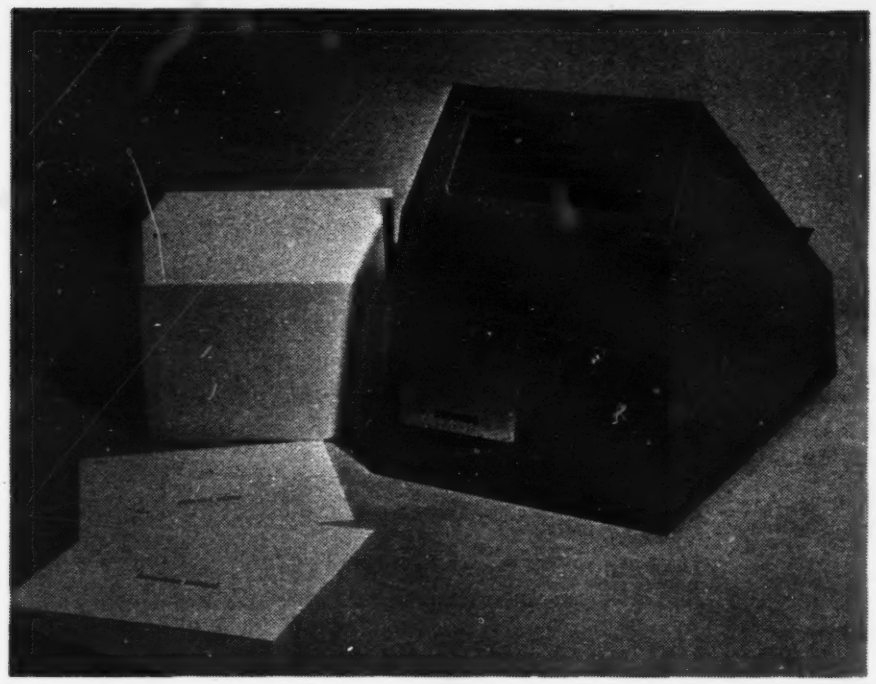
The Electro-Tach is a near-point tachistoscopic device designed for individual use. Shutter speed can be adjusted to 1/100, 1/50, 1/25, 1/10, or 1 full second. 500 targets (5" x 5 1/2" flash cards) are included in the purchase price and progress in difficulty from grade-school level through college level. Additional blank targets are available.

Electro-Tach (with 500 targets): $ 98.00.
Blank targets (per hundred): $ 1.75.
(per thousand): $ 12.50.

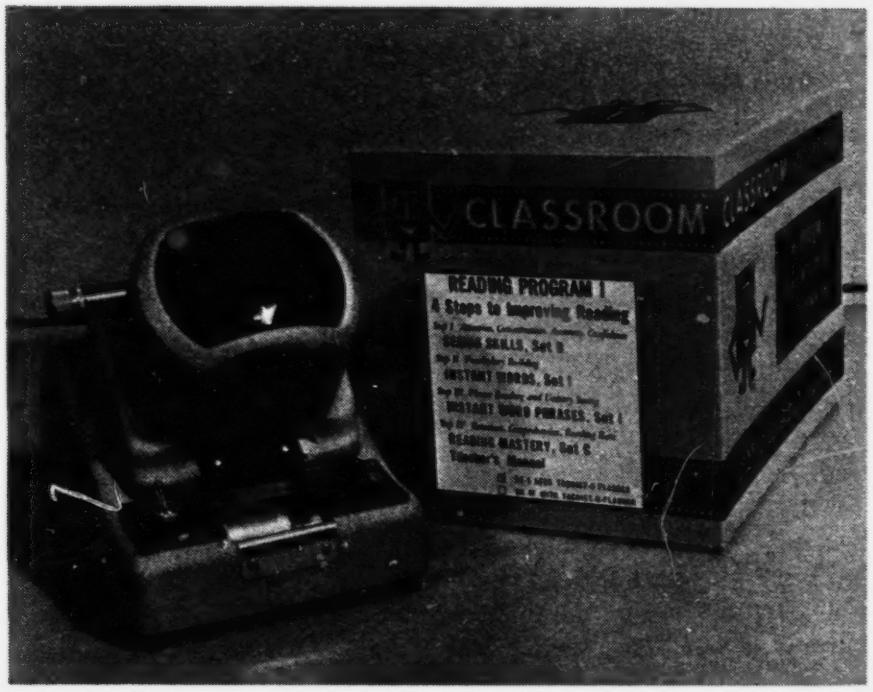
7. Tachist-O-Viewer, Tachist-O-Flasher, Learning Through Seeing, Inc., Sunland, California.

The Tachist-O-Viewer is another near-point tachistoscopic projector designed for individualized learning. It offers shutter speeds of 1/5, 1/10, 1/20, and 1/40 of a second, and can be used with any filmstrips. Each device requires only 3 watts of power, as it is equipped with transistorized electronic control. Tachist-O-Films programs have been designed for primary, elementary, and junior and senior high school levels in reading, phonics, and vocabulary, and each program includes a Teacher's Manual. The Tachist-O-Flasher, a manually-operated masonite tachistoscopic attachment for use with any projector, may be ordered with the classroom Tachist-O-Film programs. Tachist-O-Films also offers a more detailed series of reading programs for use with remedial classes and reading clinics; these programs include the Tachist-O-Flasher in their purchase price.

Tachist-O-Viewer: $ 98.50.
Classroom Tachist-O-Film programs $149.50.

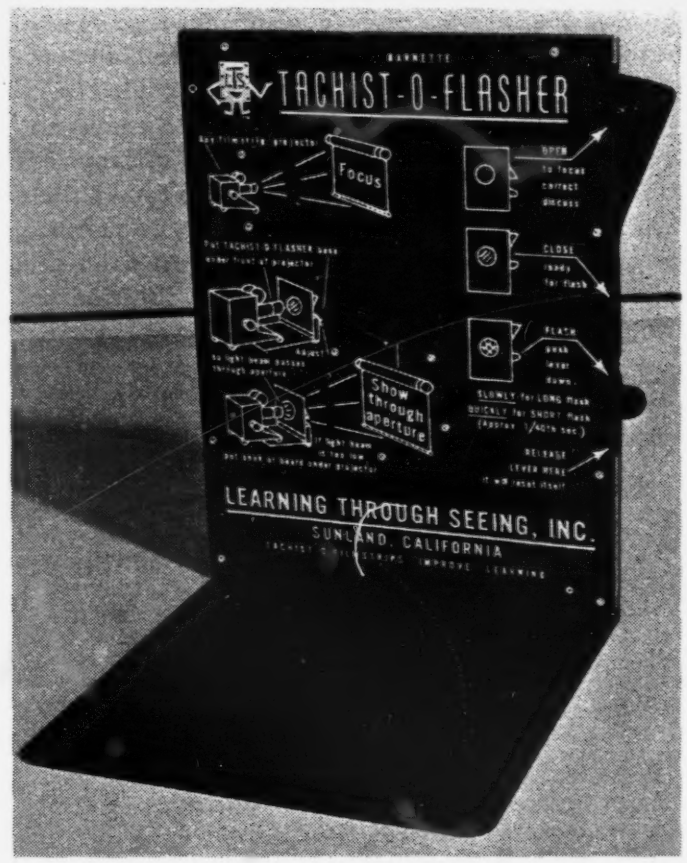


Electro-Tach



Tachist-O-Viewer

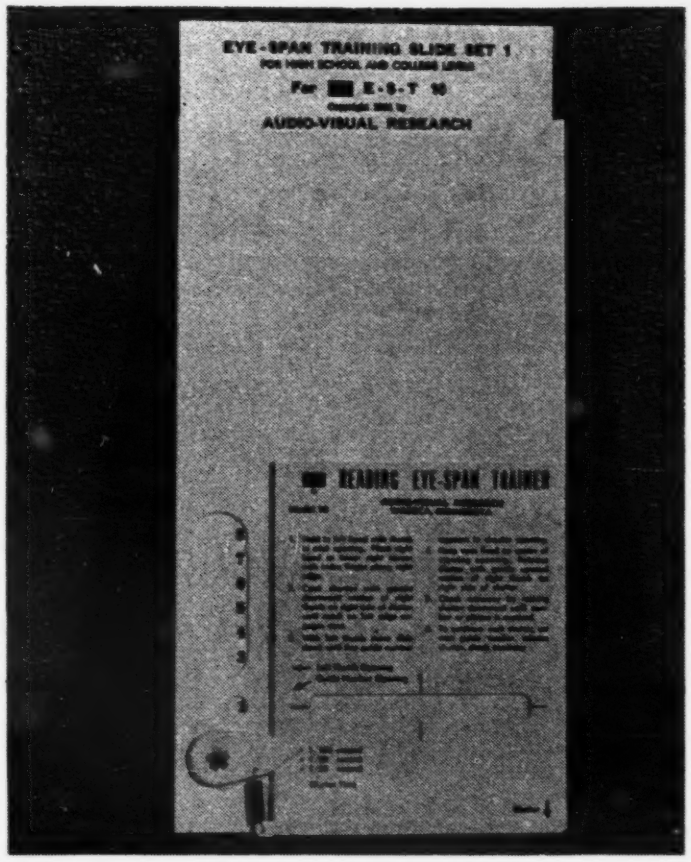
The E-S-T 10 is a small, plastic tachistoscopic trainer. Slides are advanced manually by means of a spring-mechanized shutter. The E-S-T 10 offers 3 programs of slides. Number 1, for senior high school, college and adult levels, contains 792 items. Number 2 offers advanced level training subsequent to Number 1 and contains 902 items. Number 3



Tachist-O-Flasher

Classroom Tachist-O-Film programs (with Tachist-O-Flasher): $159.50.
Clinic Tachist-O-Film programs: $159.50.

8. AVR Eye-Span Trainer (E-S-T 10), Audio-Visual Research, Waseco, Minnesota.



AVR Eye-Span Trainer (E-S-T 10)

contains 1,000 items and is designed for elementary and junior high school levels. Blank programs of 50 slides are also available for teachers who wish to design their own programs.

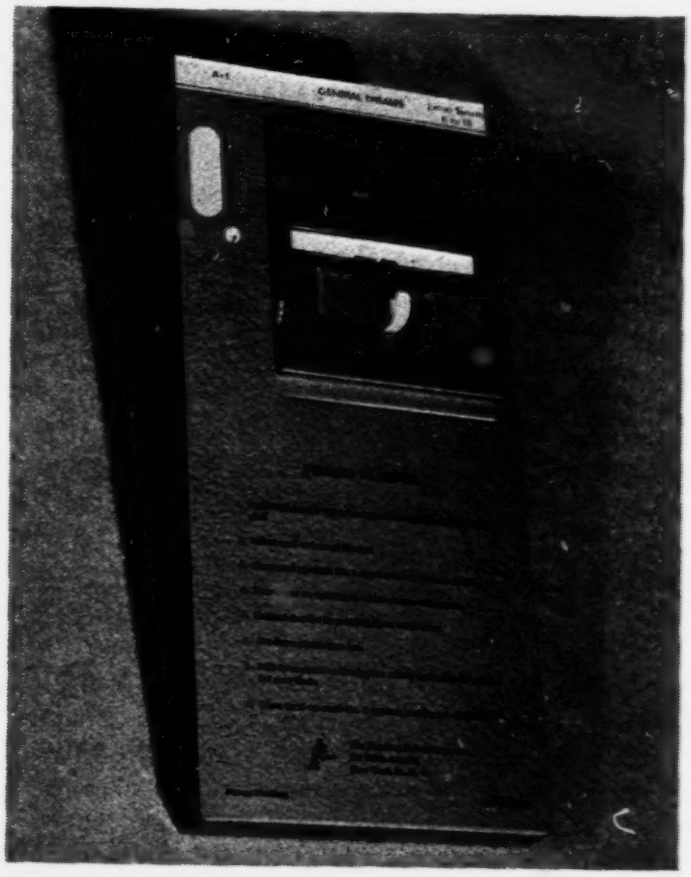
	1-4	5-9	10 or more
AVR E-S-T 10 (with case and choice of No. 1 or No. 3 slides)	$6.50 per set	$5.85 per set	$5.50 per set
AVR E-S-T 10 (with case and No. 2 and No. 3 slides)	$8.95 per set	$8.05 per set	$7.60 per set
No. 1 or No. 2 or No. 3 slides or blank slide forms	$1.50 per set	$1.35 per set	$1.28 per set

10% discount applies to all school and professional orders.

9. Phrase Flasher, The Reading Laboratory, Inc., 500 Fifth Avenue, New York, New York.

Similar to the Eye-Span Trainer, the Phrase Flasher is another tachistoscopic trainer. A manually operated shutter reveals phrases printed on insert cards so that no electrical outlet is necessary. The 40 card set that accompanies the device begins with simple words and digits and progresses to paragraphs with comprehension questions. The Phrase Flasher is designed for individual use.

Phrase Flasher: $ 9.95.

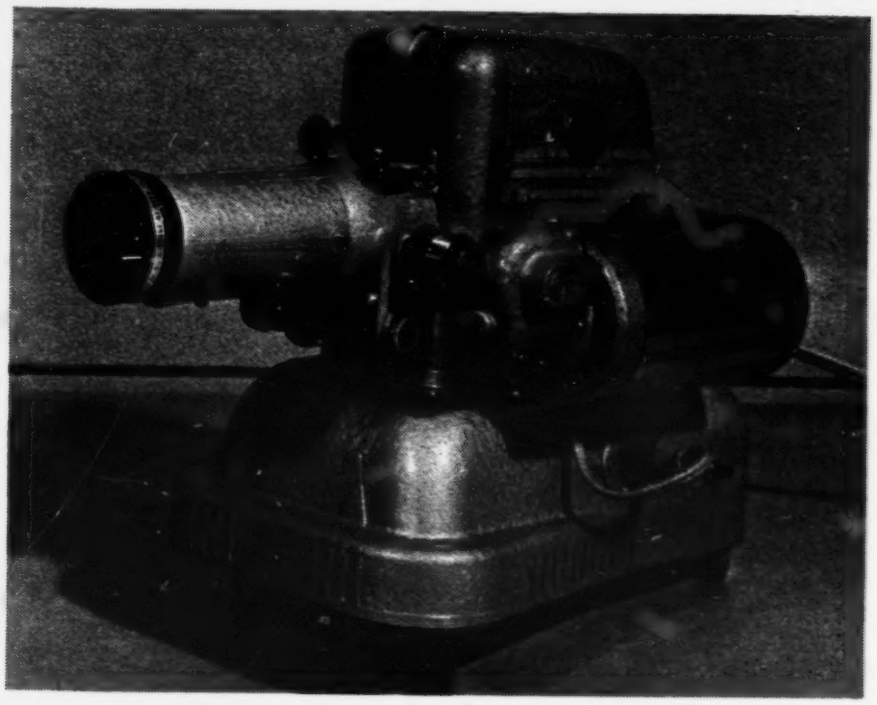


Phrase Flasher

ACCELERATORS AND PACERS

1. Controlled Reader, Controlled Reader, Jr., Educational Development Laboratories (EDL), Huntington, New York.

The Controlled Reader and Controlled Reader, Jr. are both 35 mm filmstrip pro-



Controlled Reader

jectors which present material at controlled rates, either from left-to-right or line-by-line. The Controlled Reader has 500 watt illumination and is typically used with groups of from 4 to 15 students. The Controlled Reader, Jr. has 50 watt illumination and is designed for team controlled reading. Sets of filmstrips, workbooks, teacher's manuals, and recordings are available from kindergarten to adult levels and are priced separately.

Controlled Reader: $ 110.00.
Controlled Reader, Jr.: $ 197.40.
Filmstrips range from $16.00 (set of 8) to $62.50 (set of 25).

2. Tachomatic 500 Reading Projector, Psychotechnics, Inc., 105 West Adams Street, Chicago, Illinois.

The Tachomatic 500 is a filmstrip projector designed for reading at all levels and designed for use with the Tachomatic Reading Training Films. Words and phrases are projected in a band across the screen at rates which can be varied. The following training filmstrips are available in reading:

Filmed reading lessons for grades 4, 5, and 6 (set of 20 filmstrips for each grade, with Teacher's Guide): $57.50 per grade.
Purdue Junior High School Reading Filmstrips (set of 20 filmstrips in a variety of fixation patterns with Teacher's Book): $ 44.75.*
Junior High School Level (set of 20 filmstrips): $ 42.50.*
Senior High School Level (set of 20 filmstrips): $ 42.50.*
Advanced High School and College Freshman Level (set of 20 filmstrips): $ 42.50.*
Basic Vocabulary for Grades 4, 5, and 6 (20 filmstrips, 500 words with phrases and phonetic descriptions): $ 42.50.
Tachomatic 500 Reading Projector: $295.00.

*Each of these sets contains 8 filmstrips with 3 fixations per line, 8 with 2 fixations per line, and 4 single line presentations.

3. Shadowscope, Psychotechnics, Inc., 105 West Adams Street, Chicago, Illinois.

The Shadowscope is an electric reading pacer. Designed for junior high school level and above, it has an adjustable range of 100 to 3,000 words per minute within scales which are determined by print type. A reading rate conversion table is included on the device. The intensity of the pacing beam of light may be reduced to approach the normal reading situation as the reader advances.

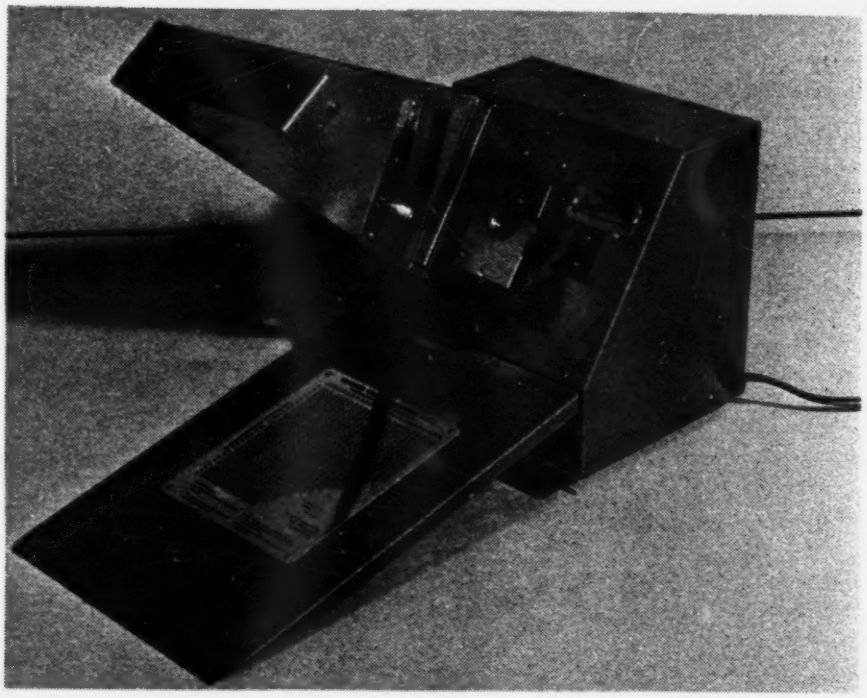
Shadowscope: $ 94.00.

Discounts ranging from 2% to 10% apply, depending on number purchased.

4. Prep-Pacer, The Reading Laboratory, Inc., 370 Lexington Avenue, New York, New York

The Prep-Pacer is another electrical pacing device, but a disk rather than beam of light guides the reader down the page. The words

Tachomatic 500 Reading Projector



Shadowscope

per minute range is high, and a words per minute calculator is included on the device.

Prep-Pacer: $ 35.00.

5. AVR Reading Rateometer, Audio-Visual Research, 1509 Eighth Street, S. E., Waseco, Minnesota.

Prep-Pacer

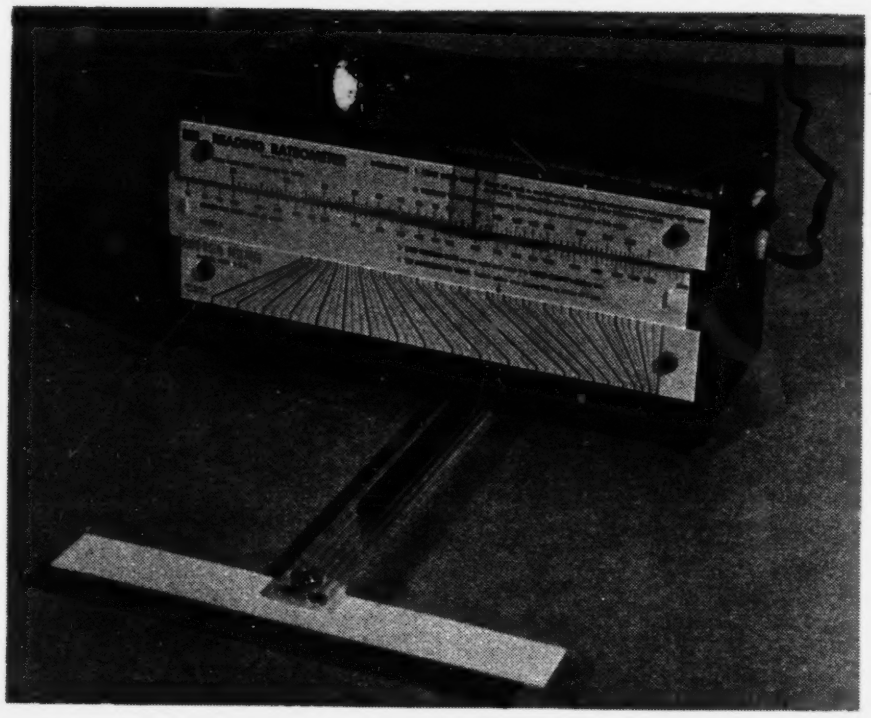
Three models of the Reading Rateometer, which guides the reader down the page by means of a pacing bar, are available. Model A, at the fourth-grade level, offers a range of 70 to 2,500 words per minute. Model B, for elementary and remedial readers, has a range from 20 to 200 words per minute. Model C, for advanced readers, offers a range of 140 to 5,000 words per minute. The Rateometer, like the Shadowscope, Prep-Pacer, and the Reading Accelerator which follows, can be used with any reading material and incorporates a words per minute calculator for rapid evaluation. It is electric.

AVR Reading Rateometer: 1-4 $39.95 each.
5-9 $35.95 each.
10-- $33.95 each.

10% discount applies to all schools and professional orders.

6. SRA Reading Accelerator, Model IV, Science Research Associates, 259 East Erie Street, Chicago, Illinois.

The SRA Reading Accelerator is entirely mechanical, and requires no electricity. Made of plastic and weighing 1 1/2 pounds, it is easily portable. The Accelerator shutter moves down the page of any printed material, preventing eye regressions. The manual and chart, which are necessary to calculate words per minute, are sold separately, though a speed control is included on the device. The Reading Accelerator operates within a 30 to 3,000 words per minute range.



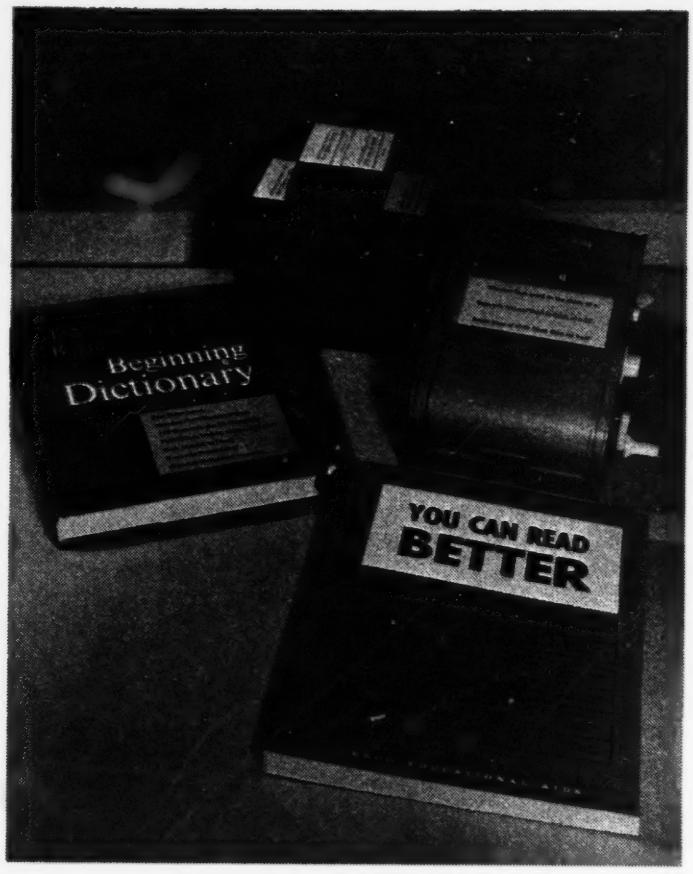
AVR Reading Rateometer

SRA Reading Accelerator, Model IV:
$ 34.50.
10 or more: $ 31.50.
Reading Ease Calculator: $ 2.50.

7. Reading Pacer, Cenco Educational Aids, 1700 Irving Park Road, Chicago, Illinois.

The Reading Pacer is a viewing device with specially prepared lesson rolls that are inserted like film in a box camera. The lesson roll progresses by means of a spring-wound mechanism, and speed is adjustable. Fourteen lesson rolls, providing both developmental and remedial functions, as well as teacher and

SRA Reading Accelerator



Reading Pacer

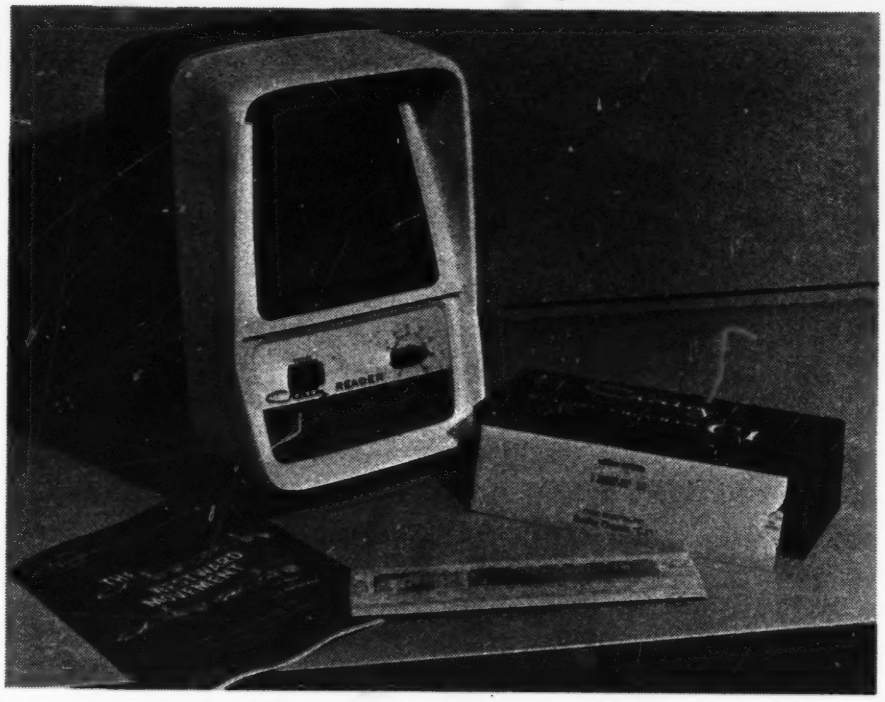
student manuals and the fifth edition of the Thorndike-Barnhardt Beginning Dictionary are included in the Cenco Reading Program.

No. 58321-1 Cenco Reading Program (child edition): $ 79.50.
No. 58321-2 Cenco Reading Program (adult edition): $ 79.50.

8. Craig Reader, Craig Research, Inc., 3410 La Cienega Boulevard, Los Angeles, California.

The Craig Reader is a near-point tachistoscopic and pacing device, which is converted by means of a dial. Designed for individual use, each Reader requires 50 watts of power. The Craig Reader uses slide units containing 12 film frames on each slide, rather than loose filmstrips, and offers a reading range from 100 to 2,000 words per minute. Craig has recently modified and expanded its America Grows series of reading programs (C-programs, primarily designed for the remedial reader at junior and senior high school levels), and further remedial programs will be available in 1967. Each C-program pursues a continuous narrative, and student interest has been demonstrably high. The C-programs are accompanied by student manuals.

Craig Reader: $229.50.
Reading Program C-1 (4th and 5th grade vocabulary): $ 32.00.
Reading Program C-2 (6th grade vocabulary): $ 30.00.
Reading Program C-3 (7th grade vocabulary): $ 35.00.



Craig Reader

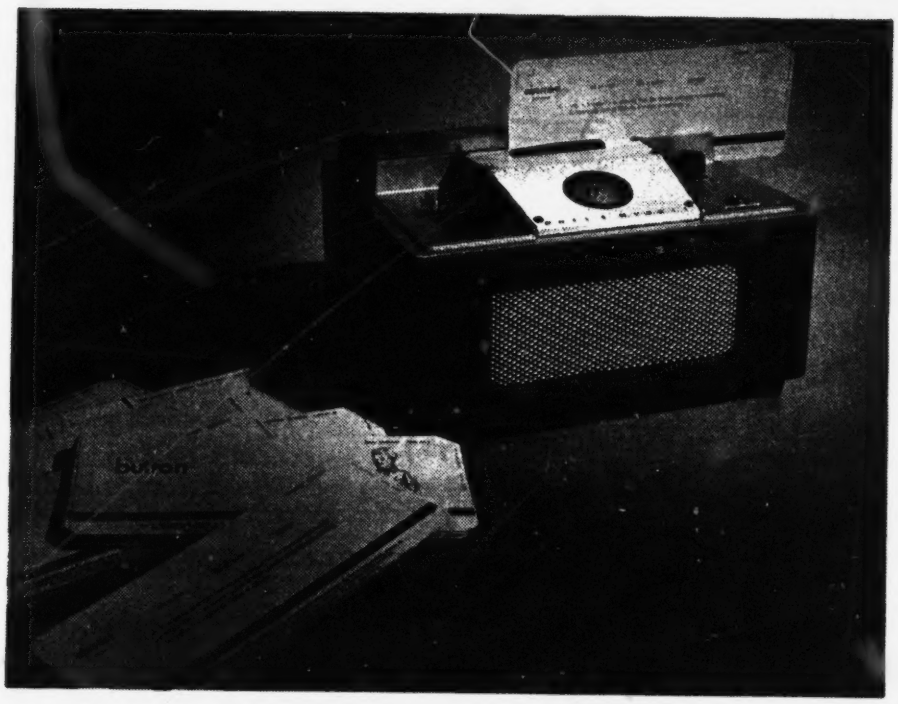
MULTIMEDIA PRESENTATIONS

1. Language Master 711B, Bell and Howell, 1700 McCormack Road, Chicago, Illinois.

Similar to a tape recorder, the Language Master presents both visual and auditory material in small segments, and records an auditory response. Students can use the Language Master unaided, since cards function as tape reels, eliminating winding and rewinding entirely. An erasable tape lines the base of each card, which supplies a professional auditory model and records the student's auditory response. Improved responses are recorded over the student's initial response, supplying immediate reinforcement. Blank cards for teachers' presentations are available, and since only the tape bases of the cards are processed by the device, these may be tactually as well as graphically embellished. The Bell and Howell Company offers the following English language programs:

Vocabulary Builder Series (3 sets)
Word-Picture Series (3 sets)
Language Stimulation (3 sets)
English Development Series (4 sets)
The Sounds of English (1 set)
Phonics Series (3 sets)

Language Master 711B portable: $250.00.
Headphones: $ 35.00.
Series presentation (200 cards): $ 35.00.
Standard Size and Jumbo Blank Cards (per hundred): $ 6.00.



Language Master 711B

2. Califone Remedial Reading Laboratory, Carlton Films, 3055 Park Avenue, Beloit, Wisconsin.

This multi-modal approach to remediation includes auditory, kinesthetic, tactile and speech tactile techniques. Hand-eye-ear coordination is stressed by physiological and perceptual training throughout the program.

Laboratory equipment consists of 4 solid-state tape playback units housed in a teacher-operated console with a monitor panel and includes teacher and student headsets, tables, dividers, and jackboxes. Each laboratory package is designed for use by 8 students per hour; that is, 4 students working with the teacher and 4 students working with the equipment and materials. The entire package has been organized into sub-kits for use with specific grade levels. Kit material consists of prerecorded tapes and printed reusable student workbooks which include criterion tests, textbooks, and Teacher's Manual.

Califone Remedial Reading Laboratory equipment: $1,980.25.
Califone Remedial Reading Laboratory kits: $1,333.10 - $2,430.95.

3. Cenco Remedial Reading and Language Laboratory, Cenco Educational Aids, 1700 Irving Park Road, Chicago, Illinois.

Cenco Remedial Reading and Language Laboratory

Considerably more portable than other multimedia presentations, the Cenco Remedial Reading and Language Laboratory consists of a Responda-phone headset-receiver and any tape recorder. The headset receives tape recorded signals by wireless induction, eliminating direct-wire connection with the recorder. The tape recorder speaker-output transmits signals through an insulated wire which is run around the perimeter of the room. Each headset includes a built-in transistorized induction-receiver-amplifier and microphone, so that students can repeat taped lessons into their headsets and hear immediate playback and reinforcement through the headset microphone. Two C-type batteries are required for operation.

No. 58324-1 Responda-phone Headset: $ 50.00.

No. 71011 C-type batteries for use with the above (package of 17): $ 2.25.

4. Raytheon Resource Center, Raytheon Edex and the Dage-Bell Corporation, 455 Sheridan Avenue, Michigan City, Indiana.

This Center combines Edex's multimedia teaching with the Dage-Bell learning laboratory. Edex's Ben and Joan literacy material is designed for the equipment. Sound portions are presented via headphones, and visual material containing reading matter is presented, with questions, via projectors. Student responses are scored automatically. The complete Raytheon course, grades 4 through 8, includes audio-tapes, built-in tests, tachistoscopic films, reading pacing films, and language arts films. The Raytheon Resource Center is available by lease or purchase.

40 position Edex system and materials (12 weeks lease): $4,225.00.

Additional prices and terms are available upon request.

5. Learning 100, Educational Development Laboratories, Huntington, New York.

Learning 100 uses the total system approach, and includes tachistoscopes, films, tapes, Visuascope, Reading Eye Camera, Controlled Reader, and Controlled Reader, Jr. It is a complete electronic classroom for individual and group use. Content, vocabulary and organization are oriented towards communication skills and designed for the adult student who lacks an elementary school education. The following Learning 100 programs are available:

Readiness Program (RA) for nonreaders (10 sessions or 25 hours).
Basic Program (AA, BA, CA) for reading levels 1-3 (30 sessions or 75 hours per level).
Intermediate and Advanced Program (DA-HA) for reading levels 4-8 (30 sessions or 75 hours per level).

Instructional materials, level RA-AA: $690.20.
Instructional materials, level BA: $453.30.
Instructional materials, level CA: $453.90.
Instructional materials, levels DA, EA, FA: $694.40.

Instructional devices (to accommodate up to 18 students per session): $1,507.80.